Space Weather Forecast

Issued on Saturday, 07 May 2022 at 01:20 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: Chance of Minor/Moderate radio blackouts from X-ray flares, slight chance of Strong.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours, with frequent Common class flares. There are currently three numbered sunspot regions on the visible disc, as AR3003 has recently faded from view. AR3004 remains the largest and very complex, while AR3006 is smaller and complex. AR3001 remains a small, simple and stable group. There are also numerous filaments (arcs of plasma) on the visible disc.
At present then, there are no Earth-directed Coronal Mass Ejections (CMEs) in available satellite imagery.

Solar Wind / Geomagnetic Activity: The solar wind remained at background levels. The number of particles and their associated magnetic field were both stable and unremarkable, therefore the resulting geomagnetic activity was Quiet.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: There is a chance of Moderate class flares from AR3004 or AR3006, with a daily Slight Chance of strong flares as both regions will remain on the visible disc throughout the forecast period. A new and potentially active region appears likely to rotate onto the southeast limb within the next day or two.

Solar Wind / Geomagnetic Activity: No coronal holes feature in this forecast. Reanalysis of a centre-disc disturbance from the vicinity of AR3004 at 1700UTC on 03 May has resulted in a low confidence CME with an Earth-bound component. The CME's may arrive later today, but more likely early tomorrow. There is a Chance of Minor Storm from this event, otherwise geomagnetism should remain predominantly Quiet.

Energetic Particles / Solar Radiation: Solar radiation storms are felt to be unlikely in the period, however there is a daily slight chance of S1 or above, largely as a result of the largest sunspot's westward advance.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	40	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	50	50	50
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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